Standard Operating Procedure Interim Change Notice (ICN)

Part I: Description of Change (Requestor completes)

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2. SOP No.: 06.09, R1

3. Revision/Interim Change No.: 1 (Current)

4. SOP Title: Spade-and-Scoop Method for the Collection of Soil Samples

5. Description of Change: (Attach marked-up pages if necessary)

Add the following Note after Section 6.2.4:

Note: Field sieving of the sample can be performed at this stage if it is desired to remove rocks and woody material before analysis. Use of a 2-mm (No. 10) sieve allows separation of sand-size and finer particles from coarser particles. Shaking of the sieve is performed until only particles > 2 mm in size remain on the screen. A brass sieve can be used if the potential addition of copper and zinc to the sample from the sieve is not considered to be a problem. Otherwise, a stainless steel sieve should be used. Following sieving, decontamination of the sieve is performed as specified in ER-SOP-1.08.

6. Attachments Modified, Added, or Removed: ☐ Yes ☒ No

7. Justification for ICN:

Sieving is not currently addressed in any procedure, although it is commonly performed as part of the spade-and-scoop sampling procedure.

8. Requestor: Steven Reneau [Signature on file in RPF.] 12-10-01

(Print name, then sign) (Date)

Part II: Evaluation and Approval (QPPL and the Focus Area Leader completes)

9. Evaluation Remarks: (If none enter N/A)

N/A

10. Focus Area Leader: Donald Hickmott [Signature on file in RPF.] 12/10/01

(Print name, then sign) (Date)

11. QPPL: Larry Maassen [Signature on file in RPF.] 12/10/01

(Print name, then sign) (Date)

Identifier:	Revision:	Effective Date:
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environmental restoration project

A Department of Energy
Environmental Cleanup Program

Environmental Restoration Project
Standard Operating Procedure

for:

Spade-and-Scoop Method for the Collection of Soil Samples

Los Alamos
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Spade-and-Scoop Method for the Collection of Soil Samples

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Spade-and-Scoop Method for the Collection of Soil Samples

NOTE: Subcontractors may follow this standard operating procedure (SOP) for collecting soil samples using the spade and scoop method or may use their own procedure(s) as long as the substitute meets the requirements prescribed by the Laboratory s LPR 308-00-00.1, Quality, and has been approved by the Environmental Restoration (ER) Project s Quality Program Project Leader (QPPL) before the commencement of the designated activities.

NOTE: ER Project personnel may produce paper copies of this procedure printed from the controlled-document electronic file located at http://erinternal.lanl.gov/documents/Procedures/sops.htm. However, it is their responsibility to ensure that they are trained to, and utilizing, the current version of this procedure. The author may be contacted if text is unclear.

1.0 PURPOSE

This SOP describes the process for spade-and-scoop collection of shallow (typically 0–~~1~~2 in.) soil samples at the Los Alamos National Laboratory (Laboratory) ER Project.

2.0 TRAINING

2.1 All users of this SOP are trained by self-study, and the training is documented in accordance with QP-2.2 (and is documented appropriately in the ER Project Training Database [http://erinternal.lanl.gov/Training/Training.asp]).

2.2 The **Field Team Leader** (FTL) will monitor the proper implementation of this procedure and ensure that relevant team members have completed all applicable training assignments in accordance with QP-2.2.

3.0 DEFINITIONS

3.1 *Site-Specific Health and Safety Plan (SSHASP)* A health and safety plan that is specific to a site or ER-related field activity that has been approved by an ER health and safety representative. This document contains information specific to the project including scope of work, relevant history, descriptions of hazards by activity associated with the project site(s), and techniques for exposure mitigation (e.g., personal protective equipment [PPE]) and hazard mitigation.

4.0 BACKGROUND AND PRECAUTIONS

Note: This SOP is to be used in conjunction with an approved SSHASP. Also, consult the SSHASP for information about, and use of, all PPE.

4.1 The spade-and-scoop method is the simplest method of sample collection. A sample is taken by digging a hole to the desired depth, as prescribed in the sampling and analysis plan, and collecting a discrete grab or portion of a composite sample. Stainless-steel shovels, spades, bowls, and scoops are recommended because of the ease with which they can be decontaminated. If stainless steel is not appropriate, use disposable sampling tools constructed of materials such as polystyrene or Teflon.

4.2 The spade-and-scoop method will work in any soil type, including cobbles which will stop a hand auger. If a spade will not work in a given area, an alternate tool must be used. This tool could be a concrete saw for concrete, a pickax for asphalt, a Maddox for roots and rocks, or a backhoe or posthole digger for deep holes or hard soil. (A hand auger or backhoe may be more effective for digging holes deeper than 2 or 3 ft.) All waste generated by sampling operations should be handled in accordance with ER-SOP-1.06.

4.3 Depending upon the constituents expected at a sampling location (high explosives, radionuclides) site-specific safety screening (high explosives spot test, rad screening) may be required prior to sample collection. These requirements will be detailed, on a site-specific basis, in the SSHASP.

5.0 EQUIPMENT

A checklist of suggested equipment and supplies needed to implement this procedure is provided in Attachment A.

6.0 PROCEDURE

Note: Deviations from SOPs are made in accordance with QP-4.2.

6.1 Preoperation Activities

6.1.1 Review ER-SOP-1.02, -1.03, and -1.04 which cover issues of appropriate sample containers as well as documentation, packaging, and shipping of collected samples. For further guidance regarding sample containers, sample preservation, and coordination of sample shipping to analytical laboratories, coordinate with both the data-support technician assigned to the appropriate focus area and the Sample Management Office (SMO).

6.1.2 Gather and decontaminate the needed supplies and equipment, as specified in ER-SOP-1.08.

6.2 Sampling Activities

6.2.1 Using the most effective tool available, excavate to the required depth. With the scoop, excavate either down or to the side of undisturbed soil to collect the sample material.

6.2.2 If the sample suite is being collected for volatile organic compound (VOC) analysis, collect this fraction first and transfer the material directly into the sample bottles. Be sure to bottle and cap the sample quickly, without homogenizing the soil, and to leave no airspace in the sample container, if possible. The cap must have a Teflon liner to facilitate laboratory analysis of the VOCs.

Note: En Core sampling is recommended for VOC samples that have been collected for environmental characterization. Blanks and other field quality assurance (QA) samples must be collected as prescribed in ER-SOP-1.05.

6.2.3 Remove enough material to completely fill the remaining sample bottles.

6.2.4 Homogenize the sample material in a stainless-steel bowl and containerize the remaining sample suites.

Note: If collecting multiple samples by this method, avoid cross-contamination by either decontaminating the spade, bowl, and scoop before collecting the next sample (see ER-SOP-1.08) or using dedicated or disposable sampling material for each event. If the sampler s gloves come in contact with the sampled material during sampling, the gloves should also be changed before sampling at a different location or depth.

6.2.5 Collect any additional samples for field quality control, as specified in ER-SOP-1.05.

6.2.6 Label sample containers and complete documentation according to ER-SOP-1.02 and -1.04.

6.2.7 Whenever a sample is collected for analyses, a custody record must be created using a Chain of Custody/Request for Analysis Form and a sample label must be affixed to the sample container. Follow the guidance supplied in ER-SOP-1.04.

6.3 Postoperation Activities

6.3.1 Decontaminate all equipment as specified in ER-SOP-1.08.

6.3.2 Pack samples and ship them to the analytical laboratory as specified in ER-SOP-1.03.

6.3.3 Return all supplies and equipment to their proper storage location.

6.3.4 Make sure all sampling locations are properly staked and that the location ID is readily visible on the location stake.

6.3.5 Survey all sample locations and upload the survey data into FIMAD (the Facility for Information, Management, Analysis and Display).

7.0 REFERENCES

The following documents have been cited within this procedure.

Note: This procedure refers to the latest version of these procedures and their replacements, if any.

QP-2.2, Personnel Orientation and Training

QP-4.2, Standard Operating Procedure Development

QP-4.4, Record Transmittal to the Records Processing Facility

ER-SOP-1.02, Sample Containers and Preservation

ER-SOP-1.03, Handling, Packaging, and Transporting Field Samples

ER-SOP-1.04, Sample Control and Field Documentation

ER-SOP-1.05, Field Quality Control Samples

ER-SOP-1.06, Management of Environmental Restoration Project Wastes

ER-SOP-1.08, Field Decontamination of Drilling and Sampling Equipment

ER-SOP-1.12, Field Site Closeout Checklist

8.0 RECORDS

The **FTL** is responsible for submitting the following records (processed in accordance with QP-4.4) to the Records Processing Facility.

8.1 Chain of Custody/Request for Analysis Form (Attachment C to ER-SOP-1.04)

8.2 Daily Activity Log (Attachment E to ER-SOP-1.04) or field notebook, including any deviations or other pertinent information

8.3 Sample Collection Log (Attachment B to ER-SOP-1.04)

8.4 Field Site Closeout Checklist (Attachment A to ER-SOP-1.12)

9.0 ATTACHMENTS

The document user may employ documentation formats different from those attached to/named in this procedure as long as the substituted formats in use

provide, as a minimum, the information required in the official forms developed by the procedure.

Attachment A: Equipment and Supplies Checklist for the Spade-and-Scoop Method (1 page)

Equipment and Supplies Checklist for the Spade-and-Scoop Method

_____ Stainless-steel or disposable polystyrene (i.e., or other inert material) scoop or lab spoon (scoopulas)

_____ Stainless-steel shovel or fat-pointed mason trowel

_____ Stainless-steel spade

_____ Tape measure (graduated in tenths of inches)

_____ Sturdy work boots (steel-toed)

_____ Work gloves

_____ Alternate tool and eye protection (if needed)

_____ Stakes or other markers, as appropriate, for identifying sample locations

_____ Sledge hammer for driving in stakes

_____ Safety glasses

_____ Teflon sheets or stainless-steel sampling bowls

_____ Plastic sheet

_____ Alconox (de-ionized water)

_____ Brushes (long-handled, scrub, and wire)

_____ Galvanized tub

_____ Trash bags

_____ Buckets (galvanized, stainless-steel, and plastic)

_____ Garden pressure sprayer

_____ Cleaning wipes

_____ Chem Wipes

_____ Storage containers for waste-decontaminated solutions

_____ Blue ice or equivalent

_____ Disposable laboratory gloves

_____ Camera and film

_____ Sample containers and preservatives

_____ Daily Activity Log Forms or field notebooks

_____ Chain of Custody/Request for Analysis Forms

_____ Sample Collection Logs

_____ Custody seals

_____ Sample labels

_____ Any PPE listed in, or required by, the SSHASP

_____ List of emergency phone numbers

_____ Splash apron, face shield

_____ Baseball cap

_____ Hand soap

Equipment and Supplies Checklist for the Spade-and-Scoop Method (continued)

_____ Locking coolers
_____ Padlock
_____ Ludlum 139, ESP-1, ESP-2, or equivalent, as necessary for rad screening
_____ High explosives spot test as necessary for HE screening
_____ Cellular phone, two-way radio
_____ Drinking water, Gatorade
_____ Sunscreen
_____ Masking or duct tape
_____ Sharpie markers or pens (black)
_____ Barricade tape, signs, stanchions or other postings
_____ Ziploc bags (12 x 12 in.)
_____ Any additional supplies listed in associated procedures, as needed